Chapter Two

AVIATION DEMAND FORECASTS

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The next step in facility planning is a definition of the demand that may reasonably be expected to occur at the facility over an extended period of time. This analysis involves forecasts of aviation activity for the next 20 years. In this master plan, forecasts of based aircraft, based aircraft fleet mix, and annual aircraft operations will serve as the basis for facility planning.

Forecasting any type of future activity is as much an art as it is a science. Regardless of the methodology used, assumptions must be made about how activities might change in the future. It is virtually impossible to predict with any certainty year-to-year fluctuations of activity when looking 20 years into the future. Because aviation activity can be affected by many influences at the local, regional, and national levels, it is important to remember that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to unforeseen facility needs. The objective of the forecast process is to develop estimates of the degree of these changes so that their impacts may be determined. Plans and preparations may then be made to accommodate them smoothly and cost-effectively.

The following forecast analysis examines recent developments, historical information, and current aviation trends, to provide an updated set of aviation demand projections for Seligman Airport. The intent is to provide Yavapai County with the tools to make planning adjustments as necessary to ensure the airport meets projected demands in an efficient and cost-effective manner.

NATIONAL AVIATION TRENDS

Each year, the FAA publishes its national aviation forecast. Included in this publication are forecasts for air carriers, regional/commuters, general aviation, air cargo, and military activity. The forecasts are prepared to meet budget and planning needs of the constituent units of the FAA and to provide information that can be used by state and local authorities, the aviation industry, and by the general public. The current edition when this chapter was prepared was FAA *Aerospace Forecasts-Fiscal Years 2003-2014,* published in March 2003. The forecasts use the economic performance of the United States as an indicator of future aviation industry growth. Similar economic analyses are applied to the outlook for aviation growth in international markets.

The FAA expects modest recovery in 2003. However, a return to pre-September 11 levels is not expected to be achieved until 2005, and even then the level of enplanements may not return to, or surpass those of 2001 until 2006. The majority of this decline is forecast to occur with the large air carriers, while the regional airline industry is expected to continue its growth, possibly returning to its long-term historical growth trend in 2004. Air cargo traffic is expected to grow faster than passenger traffic. General aviation is expected to achieve low-to-moderate increases in the active fleet and hours flown, with most of the growth occurring in business/corporate flying.

The forecasts prepared by the FAA assume that aviation demand will follow a similar path to recovery, as with previous altering incidents such as the 1991 Gulf War, the 1997-98 Southeast Asia financial crisis, the 1998 Northwest Airlines' strike, or the September 11 terrorist attacks. However, these forecasts were prepared prior to the war in Iraq. How deeply the aviation industry is impacted by the war can only be determined over time.

GENERAL AVIATION

Following more than a decade of decline, the general aviation industry was revitalized with the passage of the *General Aviation Revitalization Act* in 1994 (federal legislation which limits the liability on general aviation aircraft to 18 years from the date of manufacture). This legislation sparked an interest to renew the manufacturing of general aviation aircraft due to the reduction in product liability, as well as renewed optimism for the industry. The high cost of product liability insurance was a major factor in the decision by many American aircraft manufacturers to slow or discontinue the production of general aviation aircraft.

However, this continued growth in the general aviation industry slowed considerably in 2001 and 2002, negatively impacted by the events of September 11. Thousands of general aviation aircraft were grounded for weeks due to "no-fly zone" restrictions imposed on operations of aircraft in security-sensitive areas. This, in addition to the economic recession

already taking place in 2001-02, has had a profoundly negative impact on the general aviation industry.

According to statistics released by the General Aviation Manufacturers Association (GAMA), shipments of general aviation aircraft declined for a second consecutive year in 2002. During the first three quarters of calendar year (CY) 2002, aircraft shipments and billing declined 16.9 percent and 25.2 percent, respectively. Business jet shipments were down 5.6 percent during the same period, the first reported decline since 1996. The Aerospace Industries Association of America (AIAA) expects general aviation shipments to total 2,153 in 2002, a decline of 17.7 percent. AIAA also projects that industry billings will decline 13.8 percent to $6.9 billion in 2002. This would also be the first reported decline in billings since 1990.

At the end of 2002, the total pilot population, including student, private, commercial, and airline transport, was estimated at 661,358, an increase of almost 4,000 over 2001. Student pilots were the only group to experience a significant decrease in 2002, down 8.9 percent from 2001. It is assumed that much of this decline is due to the restrictions placed on flight schools and student pilot training, particularly with regard to foreign students after September 11, 2001.

The events of September 11, 2001, however, have not had the same negative impact on the business/ corporate segment of general aviation. The increased security measures placed on commercial flights has increased interest in fractional and corporate aircraft ownership, as well as on-demand charter flights for short-haul routes. The most notable trend in general aviation is the continued strong use of general aviation aircraft for business and corporate uses. The forecast for general aviation aircraft assumes that business use of general aviation will expand much more rapidly than personal/sport use, due largely to the expected growth in fractional ownership.

In 2001, total active general aviation aircraft decreased over the previous year, which was the second straight year of recorded decline, following five consecutive years of growth. Single-engine piston aircraft continue to dominate the fleet, accounting for 68.6 percent of the total active fleet in 2001. The next largest groups are experimental aircraft (9.7 percent) and multi-engine piston aircraft (8.6 percent). Turboprops, rotorcraft, and turbojets make up relatively small shares of the active fleet, accounting for 3.1, 3.2, and 3.7 percent, respectively.

Exhibit 2A depicts the FAA forecast for active general aviation aircraft in the United States. The FAA forecasts general aviation aircraft to increase at an average annual rate of 0.7 percent over the 13-year forecast period, reaching 229,490 by 2014. Single-engine piston aircraft are expected to decrease from 145,034 in 2001, to 144,500 in 2002, and then begin a period of slow recovery, reaching 149,600 in 2014. The number of multi-engine piston aircraft is expected to

decline by 0.2 percent per year over the forecast period, totaling 17,810 in 2014.

The turbine-powered fleet is expected to grow at an average annual rate of 2.5 percent over the forecast period. The number of turboprop aircraft is forecast to grow 1.5 percent per year, increasing from 6,596 in 2001, to 8,020 in 2014. Turbojet aircraft are expected to provide the largest portion of this growth, with an annual average growth rate of 3.6 percent. This strong growth projected for the turbojet aircraft can be attributed to a strong recovery in both the U.S. and global economy, continued success and growth in the fractional ownership industry, new product offerings (which include new entry level aircraft and long-range global jets), and a shift from commercial travel by many travelers and corporations.

Over the past several years, manufacturer and industry programs and initiatives have continued to revitalize the general aviation industry. Notable initiatives include the "No Plane, No Gain" program promoted jointly by the General Aviation Manufacturers Association (GAMA) and the National Business Aircraft Association (NBAA). This program was designed to promote cost-effectiveness of using general aviation aircraft for business and corporate uses. Other programs, which are intended to promote growth in new pilot starts and to introduce people to general aviation include "Project Pilot," sponsored by the Aircraft Owners and Pilots Association (AOPA), "Be a Pilot," jointly sponsored and supported by more than 100 industry organizations, and "Av Kids," sponsored by the NBAA.

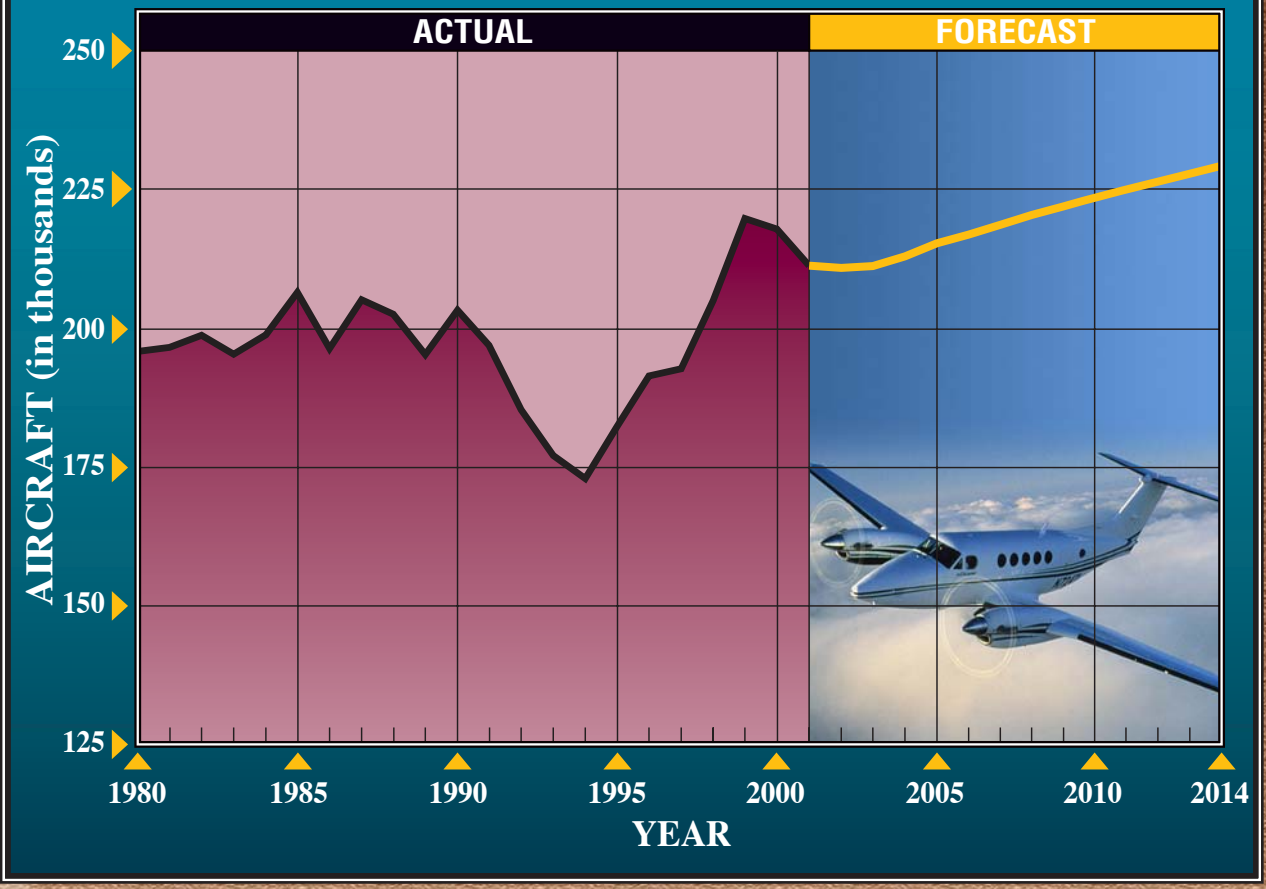
The general aviation industry is also launching new programs to make aircraft ownership easier and more affordable. Piper Aircraft Company has created Piper Financial Services (PFS) to offer competitive interest rates and/or leasing of Piper aircraft. The Experimental Aircraft Association (EAA) offers financing for kit-built airplanes through a private lending institution. Over the years, programs such as these have played an important role in the success of general aviation, and will continue to be vital to its growth in the future.

AIRPORT SERVICE AREA

The first step in determining aviation demand for an airport is to define its generalized service area for the various segments of aviation the airport can accommodate. The airport service area is determined primarily by evaluating the location of competing airports, their capabilities and services, and their relative attraction and convenience. With this information, a determination can be made as to how much aviation demand would likely be accommodated by a specific airport. It should be understood that aviation demand does not necessarily conform to political or jurisdictional boundaries.

The airport service area is an area where there is a potential market for airport services. Access to general aviation airports, commercial air

ACTIVE GENERAL AVIATION AIRCRAFT



U.S. ACTIVE GENERAL AVIATION AIRCRAFT (in thousands)

Year	FIXED WING				ROTORCRAFT		Experimental	Other	Total
	PISTON		TURBINE						
	Single Engine	Multi-Engine	Turboprop	Turbojet	Piston	Turbine			
2001 (Actual)	145.0	18.3	6.6	7.8	2.3	4.5	20.4	6.5	211.0
2004	144.9	18.2	6.8	8.4	2.5	4.4	20.5	6.5	213.1
2009	147.6	18.0	7.5	10.3	2.7	4.5	21.0	6.6	222.2
2014	149.6	17.8	8.0	12.3	2.8	4.6	21.5	6.7	229.5

Sources: FAA General Aviation and Air Taxi Activity (and Avionics) Surveys.
FAA Aerospace Forecasts, Fiscal Years 2003-2014.

Notes: An active aircraft is one that has a current registration and was flown at least one hour during the calendar year.

SELIGMAN AIRPORT

Exhibit 2A
U.S. ACTIVE GENERAL AVIATION
AIRCRAFT FORECASTS

service, and transportation networks enter into the equation that determines the size of a service area, as well as the quality of aviation facilities, distance, and other subjective criteria.

In determining the aviation demand for an airport, it is necessary to identify the role of the airport. As previously mentioned, Seligman Airport is not included in the FAA's National Plan of Integrated Airport Systems *(NPIAS)*. The airport is included in the Arizona State Aviation Needs Study and is recognized by the State as a general aviation airport.

General aviation includes all components of the aviation field, with the exception of the military and commercial air carriers. General Aviation includes all business flying (corporate and executive), all agricultural aviation, personal flying for sport or pleasure, as well as flight schools and flight clubs. Aircraft manufacturers and aircraft maintenance facilities are also a part of general aviation.

General aviation airports such as Seligman have been traditionally developed to provide another means of transportation to a specified region in a manner that provides the best network of airports state and nationwide. This is especially true, for example, for medical transportation needs. Helicopters are widely utilized in metropolitan areas for medical evacuation operations, however, airplanes are used more often in more remote settings due to expediency. For this reason alone, it is important that the region be served by a functional airport which can accommodate medical evacuation operations. The airport should also be capable of accommodating the aviation demand of the region in which it is located.

The airport's service area is often limited by factors such as demographic conditions of the region, impediments to airport access (e.g., limited or nonexistent roadway networks), and other nearby airports. Seligman Airport is actually bolstered by its roadway system access. The airport is located within one mile of an entrance/exit point of Interstate 40, as well as being located immediately adjacent to Historic Route 66. In fact, the location of Route 66 makes the location a tourist attraction, primarily for those using automobiles, but also for those using aviation as a means for transportation.

The local populace does not provide significant aviation demand. According to County staff, the airport is home to just one based aircraft. The airport is important to the region as it serves to accommodate visitors to Historic Route 66 and other tourism in the region, including the Grand Canyon area. The airport is also a vital tool utilized for training by Embry Riddle Aeronautical University (ERAU). ERAU is a major aviation university with a campus located in Prescott. A portion of the university is dedicated to flight training. ERAU currently operates 44 aircraft from Ernest A. Love Field in Prescott. Discussions with the ERAU flight department indicate that they

utilize Seligman Airport daily for training operations.

Nearby airports likely have little if any impact on aviation demand at Seligman Airport. The nearest airport, Grand Canyon Caverns located 21 nautical miles northwest, reports no based aircraft. Another nearby airport, H. A. Clark Memorial Field, is located 34 miles east of Seligman Airport. This airport has 15 reported based aircraft and operations are estimated at 4,000 annually. It is very apparent that nearby airports have little if any impact on the aviation demand at Seligman Airport due to limited demand in the region in general. The only exception would be ERAU activity at Seligman. Operating from Prescott, ERAU is the single largest operator at Seligman Airport.

The potential for increased aviation demand for Seligman Airport lies in the growing population and promising business growth of the Town of Seligman and the surrounding region. Tourism and recreation industries promise increased private flying activity in the region, while the continued growth in the services and trade sectors offer a potential for corporate and business general aviation activity. Also, the training operations by ERAU will continue to drive the majority of operations at Seligman Airport well into the future.

The primary locale in the airport's service area is the Town of Seligman. The study will consider the airport's service area to extend outward to at least a 30-mile radius of the airport. **Exhibit 2B** depicts the area, along with a history of aircraft registered within the general limits of the service area. Obviously, the service area extends into Coconino County to the north/northeast, however, the majority of populace and area within the service area is within Yavapai County.

It is important to note that municipalities such as the Town of Seligman have not traditionally been capable of supporting an airport due to financial limitations. The County's involvement has provided the Town with a valuable asset. The forecast analyses conducted in the following sections take into consideration the expected local and regional growth, as well as the competing airports which influence the Seligman Airport service area.

DEMOGRAPHIC PROJECTIONS

Population growth provides an indication of the potential for sustaining growth in aviation activity over the planning period. A summary of historical and forecast population for the Town of Seligman and Yavapai County is presented in **Table 2A**. Historical information was obtained from the U. S. Department of Commerce and the Arizona Department of Economic Security. Forecasts for the town of Seligman were made by extending outward the growth rate (1.42 percent) experienced over the last two years.

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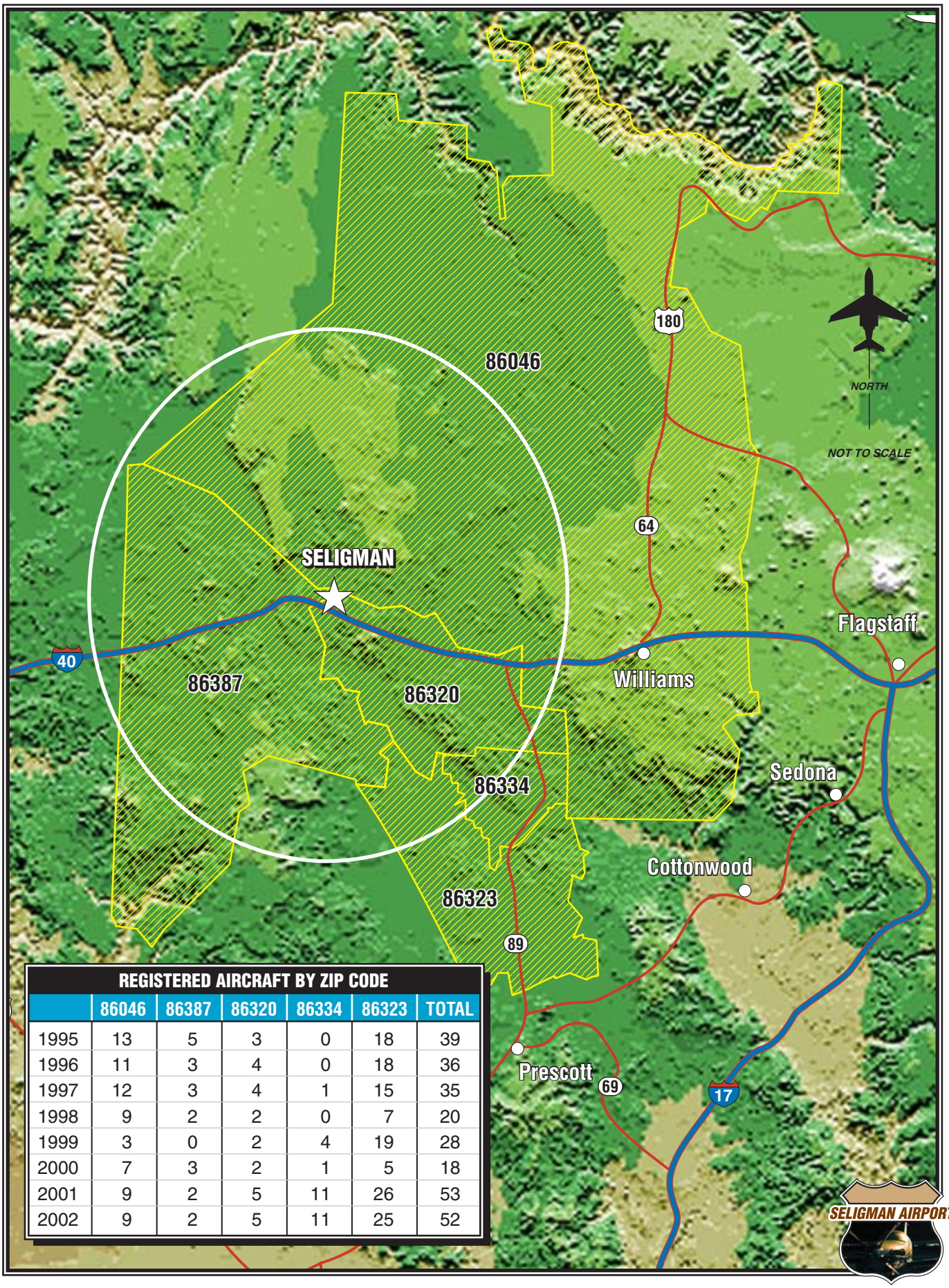

REGISTERED AIRCRAFT BY ZIP CODE

	86046	86387	86320	86334	86323	TOTAL
1995	13	5	3	0	18	39
1996	11	3	4	0	18	36
1997	12	3	4	1	15	35
1998	9	2	2	0	7	20
1999	3	0	2	4	19	28
2000	7	3	2	1	5	18
2001	9	2	5	11	26	53
2002	9	2	5	11	25	52

Exhibit 2B
REGISTERED AIRCRAFT
BY ZIP CODE

TABLE 2A
Socioeconomic Projections for Yavapai County

		Yavapai County		
Year	**Seligman Population***	**Population**	**Employment**	**Adjusted PCPI**
1980	n/a	68,145	24,820	$16,097
1990	680	107,714	42,570	$17,853
2000	456	167,517	71,980	$18,973
2002	469	180,260	74,791	$19,461
FORECASTS				
2008	510	219,698	93,479	$21,024
2013	547	252,010	107,633	$22,487
2023	630	318,242	135,398	$25,747

Source: Historic data from U.S. Department of Commerce and Arizona Department of Economic Security; County forecasts from Woods & Poole CEDDS (2003);
* Seligman population projection by Coffman Associates.

Projections for the County were obtained from Woods and Poole, *The Complete Economic and Demographic Data Source*(CEDDS 2003). Typically, the study would utilize the projections made by the Arizona Department of Economic Security (D.E.S.) or Yavapai County; however, the latest D.E.S. forecast effort was completed in July 1997. Since that time, the U. S. Census Bureau completed the 2000 Census and has released statistics for 2000. Comparing the year 2000 population forecast for Yavapai County prepared by the Arizona Department of Economic Security versus the actual census figures, indicates that the forecasts are considerably lower than actual census figures. The projected 2000 population for Yavapai County was 152,966, while the actual Census figure for 2000 was 167,517. Obviously, the remainder of the forecast years would be considerably low as well.

The Yavapai County General Plan (April 2003) also discussed the differences. The General Plan indicated that the D.E.S. utilized a 2.87 percent annual growth rate. Utilizing this growth rate with the actual 2000 census yields a forecast similar to the Woods and Poole projection. For this reason, the Woods and Poole forecasts were utilized. This data was prepared in 2002.

As reflected in the table, Yavapai County has experienced significant growth in population and employment over the last three decades. As detailed in the previous chapter, Yavapai's population and employment increased at an average annual rate of more than five percent since 1970. Prescott Valley experienced the largest percentage growth over the period, while other localities such as Camp Verde, Chino Valley, Clarkdale, Cottonwood, and Verde Village also experienced strong population growth. PCPI has experienced slower growth, increasing at only 1.22 percent on an average annual basis since 1970.

Population forecasts for Yavapai County indicate continued growth at a slower pace. As presented in **Table 2A**, Yavapai County population is expected to increase to 318,242 by 2023. This equates to an average annual growth rate of 2.74 percent. County employment is expected to increase at an average annual rate of 2.87 percent, reaching 135,398 in 2023. PCPI is projected to reach $25,747 in 2023. There were no available forecasts for the Town of Seligman. For planning purposes, Seligman population projections presented in the table consider simply extending the growth rate experienced between 2000 and 2002. This projection would yield 630 Town of Seligman residents by 2023.

FORECASTING METHODOLOGY

The development of aviation forecasts is both an analytical and judgmental process. Several mathematical relationships are tested and applied to establish statistical logic and rationale for projected aviation growth. In addition, the forecast analyst must depend upon their own professional experience, aviation industry knowledge, and personal assessment of the service area situation in making the final determination of the preferred forecast.

Reliable aviation demand estimates are best arrived at through the utilization of more than one analytical technique. Methodologies frequently employed include trend line projections, correlation/regression analysis, and market share analysis.

Aviation forecasts which extend beyond five years should not be granted an overly high level of confidence. Due to the fact that it often takes longer than five years to complete a major facility development program, facility and financial planning usually require a minimum ten-year projection. It is important, however, to use forecasts which do not overestimate the Airport's revenue-generating capability or underestimate future facility needs which are required to meet aviation activity demands.

Many factors influence the aviation industry, some of which can have significant impact, both locally and nationally. Advances in aviation technology have in the past and will in the future continue to affect the growth rate of aviation demand. As these technologies evolve and new ones emerge, it is hard to predict their impact on the aviation industry; simply put, there is no way to mathematically estimate what influence they may have. Therefore, a broad band of local, regional, and national socioeconomic information must be applied in the analysis and development of aviation forecasts. The following forecast analysis examines general aviation demand at Seligman Airport over the next twenty years.

To determine the types and sizes of facilities that should be planned to accommodate general aviation activity, certain elements of this activity must be

forecast. Indicators of general aviation demand usually include:

- Based Aircraft
- Based Aircraft Fleet Mix
- Annual Operations
- Peak Activity

The remainder of this chapter will examine historical trends regarding these areas of general aviation, and project future demand for these segments of general aviation activity at Seligman Airport.

BASED AIRCRAFT

The number of aircraft based at an airport is, to a large degree, dependent upon the nature and magnitude of aircraft ownership in the local service area. In addition, Seligman Airport is one of a handful of airports serving the general aviation needs of the region.

As detailed earlier, the Seligman Airport service area consists primarily of Northern Yavapai County and areas within a 30-mile radius of the airport. The primary service area will continue to be the Town of Seligman, however, outlying areas and operations from other airports (e.g., ERAU) will continue to influence aviation demand at Seligman Airport.

In order to project based aircraft at the airport, it is important to first identify the market conditions from which those aircraft are derived. As previously mentioned, Yavapai County, especially the northern portion of the county serves as the primary service area for Seligman Airport. It is important, then, that the process of developing forecasts of based aircraft for Seligman Airport begins with a review of historical aircraft registrations in the county.

REGISTERED AIRCRAFT FORECASTS

Historical records of aircraft ownership in Yavapai County since 1980 were obtained from records of the FAA's *U.S. Census of Civil Aircraft*. Yavapai registered aircraft since 1990 are presented in **Table 2B**. Aircraft registered in the county has increased significantly over the last 13 years. Over this period, the county's registered aircraft increased from 375 in 1990 to 624 in 2003. This growth equates to an average annual increase of 3.99 percent. Since 1980, registered aircraft have increased 4.58 percent on an annual average basis. Applying both growth ratios would yield 1,365 and 1,527 Yavapai County registered aircraft, respectively, by 2023.

The strong growth of aircraft ownership in the region is not surprising given the relatively warm weather, growing population, and strong economic conditions. Moreover, the State of Arizona is one of the busiest aviation regions in the country. Future aircraft ownership in Yavapai County will be largely dependent upon continued growth in the region's economy and population.

Another method of projecting registered aircraft is to compare county aircraft registrations with U.S. Active aircraft.

Table 2B presents two market share projections. First, a constant share projection considers that the county-registered aircraft will remain at 0.30 percent of U.S. active aircraft over the next 20 years. This projection yields 695 registered aircraft. Next an increasing market share was considered. Over the last 13 years, the trend has been generally increasing. The increasing market share projection, reaching 0.48 percent of U.S. active aircraft, yields 1,112 registered aircraft by 2023.

TABLE 2B
Yavapai County Registered Aircraft - Market Share Projections

Year	U.S. Active Aircraft	County Registered Aircraft	% of National
1990	198,000	375	0.19%
1991	198,700	419	0.21%
1992	185,700	401	0.22%
1993	177,100	406	0.23%
1994	172,900	423	0.24%
1995	188,100	464	0.25%
1996	191,100	468	0.24%
1997	192,400	486	0.25%
1998	204,700	514	0.25%
1999	219,500	541	0.25%
2000	217,500	568	0.26%
2001	216,150	624	0.29%
2002	211,040	628	0.30%
2003	211,370	624	0.30%
CONSTANT MARKET SHARE PROJECTION			
2008	215,490	646	0.30%
2013	223,720	671	0.30%
2023	231,617	695	0.30%
INCREASING MARKET SHARE PROJECTION			
2008	215,490	733	0.34%
2013	223,720	873	0.39%
2023	231,617	1,112	0.48%

Source: Registered Aircraft from Census of U.S. Civil Aircraft; U.S. active aircraft from FAA Aerospace Forecasts, Fiscal Years 2003-2014 (note 2023 extrapolated by Coffman Associates)

The next projection for Yavapai County aircraft registrations was developed utilizing trend line analysis. The correlation coefficient **(Pearson's "r")** measures the association between changes in the dependent variable (aircraft registrations) and the independent variable(s) (calendar years). An r^2 greater than 0.90 indicates good predictive reliability. A value below 0.90 may be used with the understanding that the predictive reliability is lower. The strong growth of aircraft registrations in the region yielded an r^2 value of 0.97 for registered aircraft for the period of 1980-2003. This projection yields 985 registered aircraft by 2023. Another time-series analysis considering the time period between 1990-2003 yields an r^2 value of 0.95 and 1,045 registered aircraft by 2023.

Several statistical regressions were analyzed comparing the County's registered aircraft versus demographic conditions presented in **Table 2A**. The population and employment regressions provided the best correlation with r^2 values of 0.99. The projections associated with the population and employment regression analyses yield 1,109 and 1,075 registered aircraft, respectively. The PCPI comparison provided a r^2 value of 0.97 and 1,385 registered aircraft by 2023. Registered aircraft projections are summarized in **Table 2C** and are depicted on **Exhibit 2C**.

TABLE 2C
Registered Aircraft Projections Summary

Projection	2008	2013	2023
Time Series			
vs. 1980-2003 r^2 = 0.97	710	802	985
vs. 1990-2003 r^2 = 0.95	734	838	1,045
Regression Analysis			
vs. Population r^2 = 0.99	761	875	1,109
vs. Employment r^2 = 0.99	754	863	1,075
vs. PCPI r^2 = .97	807	986	1,385
Market Share Analysis			
Constant Share of U.S. Active Aircraft	646	671	695
Increasing Share of U.S. Active Aircraft	733	873	1,112
Historic Growth Rates			
Since 1990 @ 3.99%	759	923	1,365
Since 1980 @ 4.58%	780	976	1,527
Selected Forecast	***720***	***840***	***1,050***

BASED AIRCRAFT FORECASTS

In the preparation of based aircraft forecasts for Seligman Airport, existing and historical based aircraft records maintained by the County, the State and the FAA were obtained and reviewed. According to Yavapai County, as of December 2003, there was one based aircraft at Seligman Airport.

Based aircraft totals for the FAA are usually derived from annual inspection of the airport, and are often carried over from year-to-year, depending on the frequency of inspection. The current FAA Form 5010 Airport Master Record for Seligman Airport indicates four based aircraft for the Airport in 2003. It should be noted, however, this total has not changed in their reporting for several years. ADOT's State Aviation Needs Study (SANS) indicates four based aircraft as well.

For purposes of determining future airport facility needs and developing based aircraft projections, this master plan will utilize current based aircraft figures provided by the County, as it appears to more accurately reflect existing airport conditions. **Table 2D** presents historical registered based aircraft for Seligman Airport and offers a future market share analysis based on

percentages of Yavapai County registered aircraft.

Future based aircraft demand at Seligman Airport has been analyzed by evaluating the Airport's share of the County and State aviation markets. According to **Table 2D**, the percent of County registered aircraft currently based at Seligman Airport totals 0.16 percent. The constant market share analysis shown in **Table 2D** assumed that the Airport's share of Yavapai County registered aircraft remains unchanged at 0.20 percent, and would result in two based aircraft by 2023.

TABLE 2D
Seligman Airport Based Aircraft Forecast

Year	Yavapai County Registered Aircraft	Seligman Airport Based Aircraft	Seligman Airport % of County Registered
1980	223	2	0.90%
1990	375	3	0.80%
2000	628	4	0.64%
2003	624	1	0.16%
CONSTANT SHARE PROJECTION			
2008	720	1	0.20%
2013	840	2	0.20%
2023	1,050	2	0.20%
INCREASING SHARE PROJECTION			
2008	720	2	0.25%
2013	840	4	0.50%
2023	1,050	10	0.95%

The forecast of continued population growth and improved economic conditions in Seligman and other nearby communities, to the overall economic outlook for Yavapai County, should translate to a greater share of County registered aircraft for the Airport. The forecast increasing market share of County registered aircraft reaching the level experienced in 1980 (0.95 percent) yields ten based aircraft by the end of the planning period.

Seligman Airport's aviation demand is somewhat limited due to its location. The airport is remotely located and has a relatively small service area populace to provide support. Most of the County's registered aircraft growth has been in areas outside of Seligman's service area. **Exhibit 2B** depicted the service area, as well as a listing of historical registered aircraft for the zip code areas within the service area. As presented, the area has experienced a low of 18 registered aircraft, to a peak of 53 registered aircraft since 1995. Moreover, the two zip codes with the greatest amount of registered aircraft are nearer other airports in Prescott and Williams. Obviously, Seligman Airport based aircraft growth will be largely dependent upon the growth of aircraft ownership in the service area.

Since 1995, registered aircraft in the service area has remained near eight percent of total Yavapai County

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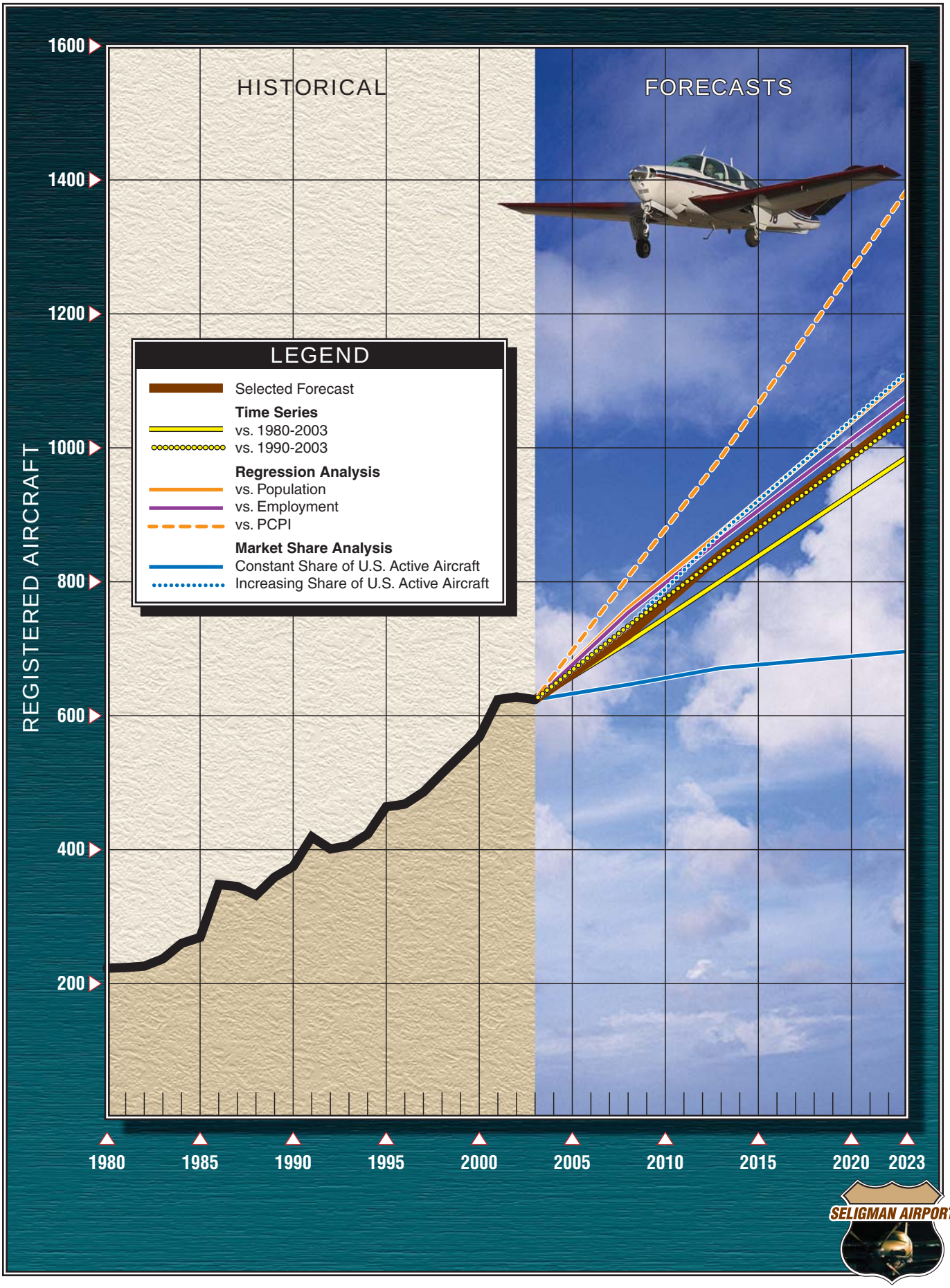


Exhibit 2C
YAVAPAI COUNTY REGISTERED
AIRCRAFT PROJECTIONS

registered aircraft. This comparison is made knowing that some of the area in the zip code service area extends into Coconino County, but serves as a good comparative measure. Simply extending out a constant eight percent share yields 84 aircraft in the service area by 2023. It is likely that the majority of those aircraft will base at airports in Prescott and Williams or even in Flagstaff. It is not unreasonable to assume, however, that Seligman can attract up to ten of those aircraft, similar to the increasing share of County registered aircraft presented in **Table 2D**.

The previous master plan and SANS considered aircraft reaching 20 by the end of the planning period. This figure now appears to be somewhat high. As mentioned earlier, the airport has few aircraft to draw from in its service area. It is important, however, to always plan for reasonable levels of demand to ensure that facility improvements to meet potential needs can be made. It appears that the increasing share of Yavapai County registered aircraft is reasonable and would provide ample facility planning opportunities. This will be the selected forecast and will be used for the remainder of this plan.

FLEET MIX

Anticipating the future aircraft fleet mix expected to utilize Seligman Airport is necessary to properly plan the facilities that will best serve, not only the level of activity, but also the type of activities occurring at the Airport. As previously mentioned, the airport has one based, single engine aircraft. The based aircraft information was provided by Yavapai County.

The forecast mix of based aircraft for Seligman Airport was determined by examining existing and forecast U.S. general aviation fleet trends. The *FAA Aviation Forecasts - Fiscal Years 2003-2014* was consulted for the U.S. general aviation fleet mix trends and considered in the fleet mix projections. Although the majority of the fleet make-up at Seligman Airport will continue to be single-engine piston aircraft, there is expected to be an increasing percentage of multi-engine, turboprop, jet, and helicopters in the future mix, all of which is consistent with national trends. **Table 2E** summarizes the based aircraft fleet mix projections for the Airport.

Due to its location and nature, Seligman Airport will most likely serve primarily the needs of single engine piston aircraft. The future fleet mix projection considers the long term potential for the airport to base both a turboprop and rotor aircraft. These aircraft are typically associated with medical evacuation operations and may not base at Seligman year round, but could base at the airport for extended periods of time. It would be important to consider this potential to ensure that facility plans are in place to accommodate these aircraft needs in the future.

ANNUAL OPERATIONS

There are two types of general aviation operations at an airport: local and itinerant. A local operation is a take-off or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Generally, local operations are characterized by training operations. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Typically, itinerant operations increase with business and industry use, since business aircraft are used primarily to carry people from one location to another.

TABLE 2E
Projected Based Aircraft Fleet Mix
Seligman Airport

Year	Total Based Aircraft	Single Engine	Multi Engine	Turbo Prop	Jet	Rotor
Historical						
2001	1	1	0	0	0	0
Forecast						
2008	2	2	0	0	0	0
2013	4	3	1	0	0	0
2023	10	6	2	1	0	1

Seligman Airport has no airport traffic control tower, therefore, aircraft operations have not been regularly counted. Instead, only general estimates of historical and current activity is available. Historical operations have come from the FAA Form 5010 for Seligman Airport. On examination of these records, it would appear that operations estimates have been carried over from year-to-year. During this time, the itinerant to local operations split is approximately 55 percent to 45 percent, respectively. In the previous master plan, an acoustical operations count was conducted. The results indicated approximately 850 annual operations.

Discussions with ERAU indicate that both the FAA Form 5010 and previous count may be somewhat low. ERAU indicates that they conduct an average of ten operations per day at the airport.

That would equate to 2,500 annual operations. Also, County staff work in the vicinity of the airport and confirm this estimate as reasonable. The airport also experiences weekend traffic due to the attraction of Historic Route 66 and local restaurants. Estimates of 20 operations per weekend were made. With these factors considered, it is reasonable to assume that annual operations at Seligman Airport are higher than presented in the FAA Form

5010. For planning purposes, an estimate of 3,500 will be used for 2003 annual operations.

The FAA Form 5010 also indicates that itinerant operations outnumber local operations. In all likelihood, local operations dominate. The estimate of 3,500 considers 2,500 annual operations by ERAU. The vast majority of these operations are local, associated with pilot training. **Table 2F** presents the local and itinerant operations estimates. Local operations are estimated to comprise 60 percent of total operations.

TABLE 2F
Operations Forecasts

Year	Itinerant	Local	Total Operations	Seligman Based Aircraft	Operations per Based Aircraft
2003	1,400	2,100	3,500	1	3,500
FORECAST					
2008	2,400	3,600	6,000	2	3,000
2013	4,000	6,000	10,00	4	2,500
2023	6,000	9,000	15,000	10	1,500

The most common method of forecasting aircraft operations is to compare annual operations with based aircraft. For airports similar to Seligman, the operations per based aircraft ratio can range up to 1,000, while typically remaining below 500. Given that the airport has only one based aircraft, however, the current ratio is one based aircraft to 3,500 operations. While this number of operations per based aircraft is higher than most GA airports, it is reasonable, due to the large number of training operations (touch-and-go's) conducted at Seligman Airport. As previously mentioned, ERAU located at Prescott's Ernest A. Love Field utilizes Seligman Airport as part of its flight training program. ERAU operations consist primarily of touch-and-go maneuvers.

The projections of annual operations at Seligman Airport, which are summarized in **Table 2F**, have been prepared by examining the number of operations per based aircraft. It is unreasonable to expect that the airport maintains 3,500 operations per based aircraft. As based aircraft increase, the operations per based aircraft ratio will decrease. For this reason, a decreasing operation per based aircraft ratio was used in forecasting annual operations. As presented in **Table 2F**, a decreasing ratio, falling to 1,500 operations per based aircraft in 2023, yields 15,000 annual operations. This projection is reasonable given the nature of the airport as a training facility for ERAU and the forecast ten based aircraft.

Although based aircraft are projected to increase in the future, it is assumed that the current 60 percent local and 40 percent itinerant split of operations will remain the same throughout the planning period. The projection of local and itinerant operations are summarized in **Table 2F**.

AIR CARGO

Seligman Airport is not currently utilized by air cargo operators. Given its remote location, use of the airport by air cargo operators could occur. There use, however, would never likely include regularly scheduled/daily service. The surrounding community does not provide a substantial industrial/commercial base. All future air cargo operations would likely be sporadic if they are to occur. For this reason, the forecasts will not include specific projections for air cargo operations.

PEAKING CHARACTERISTICS

Many airport facility needs are related to the levels of activity during peak periods. The periods used in developing facility requirements for this study are as follows:

- ***Peak Month*** - The calendar month when peak aircraft operations occur.

- ***Design Day*** - The average day in the peak month. Normally this indicator is easily derived by dividing the peak month operations by the number of days in a month.

- ***Busy Day*** - The busy day of a typical week in the peak month. This descriptor is used primarily to determine apron space requirements.

- ***Design Hour*** - The peak hour within the design day. This descriptor is used primarily in airfield demand/capacity analysis, and in determining terminal building and access road requirements.

Actual operational information is not available to directly determine peak aviation activity at the airport; therefore, peak period forecasts have been determined according to trends experienced at similar airports across the country. Typically, the peak month for activity at general aviation airports approximates 10-12 percent of the airport's annual operations. Peak month operations have been estimated as 10 percent of annual operations, as no special circumstances have been found which would result in a higher percentage. The forecast of busy day operations at the airport was calculated as 1.4 times design day activity. Design hour operations were calculated as 15.0 percent of design day operations. **Table 2G** summarizes peak activity forecasts for Seligman Airport.

TABLE 2G
Forecasts of Peak Activity Seligman

	2003	2008	2013	2023
OPERATIONS				
Annual	3,500	6,000	10,000	15,000
Peak Month (10%)	350	600	1,000	1,500
Design Day	12	20	33	50
Busy Day	16	28	47	70
Design Hour (15%)	2	3	5	6

ANNUAL INSTRUMENT APPROACHES

Annual instrument approach (AIA) data provides guidance in determining an airport's need for navigational aids. An instrument approach is defined by the FAA as an "approach to an airport with the intent to land by an aircraft in accordance with an instrument flight rule (IFR) flight plan, when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude."

Currently, Seligman Airport is not served by a published instrument approach. It is unlikely that the airport would ever qualify for an instrument landing system (ILS) approach, however, global position system (GPS) technology provides a cheaper alternative. GPS is now available for all public use airports if selected by FAA. For planning purposes, future AIAs will consider the implementation of a GPS approach to the airport.

While AIAs can be partially attributable to weather, they may be expected to increase as transient operations and operations by more sophisticated (and consequently properly equipped aircraft) increase through the planning period. For general aviation airports, AIAs can range up to five percent of itinerant operations. On average, AIAs equate to two percent of itinerant operations. For this reason, AIA projections for Seligman Airport consider AIAs being two percent of annual itinerant operations. The projections of AIAs for the airport are summarized in **Table 2H**.

TABLE 2H
Annual Instrument Approaches (AIAs) Projections
Seligman Airport

Year	AIA's	Itinerant Operations	Ratio
2008	48	2,400	2.00%
2013	80	4,000	2.00%
2023	120	6,000	2.00%

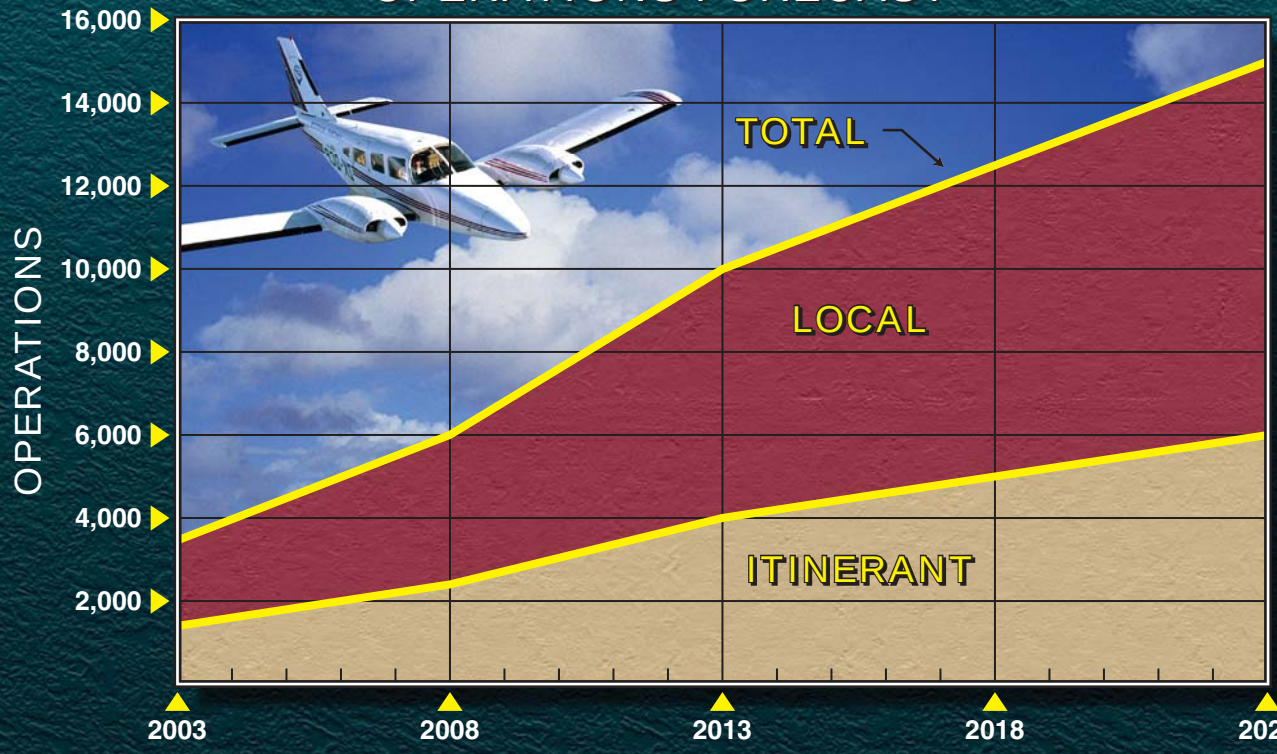
FORECAST SUMMARY

This chapter has outlined the various aviation demand levels anticipated over the planning period. The next step in the master plan is to assess the capacity of existing facilities to accommodate forecast demand and determine which facilities will need to be improved to meet these demands. This will be examined in the next chapter -- Chapter Three, Aviation Facility Requirements. **Exhibit 2D** presents a summary of the aviation forecasts developed for Seligman Airport.

FORECAST SUMMARY

ACTIVITY	2003	2008	2013	2023
OPERATIONS				
Itinerant	1,400	2,400	4,000	6,000
Local	2,100	3,600	6,000	9,000
Total Operations	***3,500***	***6,000***	***10,000***	***15,000***
AIA's	**n/a**	**48**	**80**	**120**
BASED AIRCRAFT				
Single Engine	1	2	3	6
Multi-Engine	0	0	1	2
Turboprop	0	0	0	1
Jet	0	0	0	0
Rotor	0	0	0	1
Total Based Aircraft	***1***	***2***	***4***	***10***

OPERATIONS FORECAST



SELIGMAN AIRPORT

Exhibit 2D
FORECAST SUMMARY